INVESTIGATION OF THE EFFECT OF OZONE PRETREATMENT IN THE MEMBRANE FILTRATION OF REAL DAIRY WASTEWATER

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Abstract

The dairy industry generates wastewaters characterised by high biological and chemical oxygen demand representing their high organic content, mainly carbohydrates, proteins and fats originating from milk. There are several investigations to reuse of dairy wastewaters; membrane processes are a promising method to treat such wastewaters. Earlier works proved that with membrane filtration an appropriate retention can be achieved and the permeate can be reused. However, membrane fouling is a limiting factor in these processes. Advanced oxidation processes (AOPs) such as ozon-pretreatments are widely used in the fields of water and wastewater treatments and are known for their capability to mineralise a wide range of organic compounds. AOPs also have some other effects on the filtration procedure, e.g. the microflocculation effect of ozone may play a significant role in increased elimination efficiency and causing a decreased level of irreversible fouling.

This study aimed to investigate the effect of ozonre as pre-treatment before ultrafiltration of real dairy wastewaters. Fluxes, filtration resistances and pollutant retentions were determined and compared.

Key words: membrane separation, ozone pretreatment, wastewater treatment

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